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THE CIM EDUCATION COMMITTEE'S SURVEY OF GRADUATES IN ENGINEERING AND TECHNOLOGY

by

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THE CIM EDUCATION COMMITTEE'S SURVEY OF GRADUATES IN ENGINEERING AND TECHNOLOGY

For a twenty-five year period, between 1959 and 1984, the CIM Education Committee conducted an annual survey of the numbers graduating and about to graduate from all of the various minerals-related programs in Canadian institutions of higher learning. The data from these surveys was not only an accurate reflection of graduates who would be seeking careers in the industry, but also an indicator of emerging trends. During the late 1970's and early 1980's, for example, it was possible to monitor the growth and development of the technology programs in the Community Colleges very accurately. Likewise, in the recession of the early 1980's the survey data reflected the effects: first, upon the technology programs in the colleges; then on diminishing numbers on first-degree programs in universities; and finally, on growing numbers in graduate schools. Some of those effects are still visible in enrollment.

Up until 1985, all minerals-related programs were reflected in the CIM-obtained statistics. In that year, however, a very major break from tradition took place. At the request of their own association, the CCCESC (for Council of Chairmen of Canadian Earth Sciences Departments), departments asked formally to be excluded from the survey. The view was that there were simply too many surveys and that there was no point in continuing with the CIM effort. This writer, and the Committee, were of a different opinion, however, because of the timeliness of the data and of the ease by which it could be interpreted. The writer still holds the view that the CIM data were the best available.

In the following years, there was some discussion as to whether or not the survey should be continued - albeit on a reduced scale. It was, but on a biennial basis.

The table which is presented in this brief article presents the results that were obtained from the most recent survey, conducted in 1988. As for its predecessor, published in the Bulletin in May, 1987 (p. 27), only the general summary table is presented here. The detailed tables are available, however, on request either to the author or to CIM Headquarters.

From the data, a number of trends are clear:

- The total number of graduates in Engineering and Technology has continued to decrease very quickly. The total in these categories in 1984 was 1,189. By 1986, the number had dropped to 870. In 1987 it was 753 in spite of a previous forecast of 976. The 1988 forecast of 790 will, if past experience proves to be true, be shown to be also in error on the high side (by as much as 20%).

- Some minerals-related engineering and technology programs appear to be in trouble. This is most evident from the numbers for mining engineering bachelor's degree programs and the community college programs in general. The numbers enrolling in mining engineering courses have fallen dramatically and alarmingly in the past few years. Enrollments in community college minerals programs have decreased by about 25% in two years and are still declining.

Because of the present strength in the economy and an urgent need to monitor the educational trends more carefully than a biennial survey would permit, it is planned to conduct a further survey in the near future. The results from it, if all of those from whom data are sought respond promptly, should be available within a few months.

Comments and suggestions from the membership on the survey are always appreciated and would be most welcome.

TABLE 1

MINING ENGINEERING - DEGREES RECEIVED IN 1987 - FORECAST FOR 1988-1989

UNIVERSITY	BACHELOR			MASTER			DOCTORATE		
	1987	1988	1989	1987	1988	1989	1987	1988	1989
Alberta	14	6	8	1	0	2	0	0	0
British Columbia	12	10	9	4	3	4	1	1	2
Laurentian	7	4	7	-	-	-	-	-	-
Laval	12	8	6	1	2	1	0	0	1
McGill	11	4	7	5	13	7	1	5	8
Polytechnique (Montreal)	17	5	9	3	2	1	0	2	1
Nova Scotia	4	9	4	0	1	3	1	0	0
Queen's	6	23	16	5	11	20	0	3	4
TOTAL (8 Universities)	83	69	66	19	32	38	3	11	16

TABLE 2

METALLURGICAL ENGINEERING AND METALLURGY - DEGREES RECEIVED IN 1987
FORECASTS FOR 1988-1989

UNIVERSITY	ENGINEERING								
	BACHELOR			MASTER			DOCTORATE		
	1987	1988	1989	1987	1988	1989	1987	1988	1989
Alberta	9	7	14	2	12	6	1	1	1
British Columbia	23	24	12	9	10	12	5	6	6
Laval	16	10	6	14	3	4	0	2	1
McGill	10	22	16	7	9	12	10	12	9
McMaster	21	21	20	5	5	5	2	2	2
Polytechnique (Montreal)(X)	19	20	(X)	9	11	(X)	2	5	(X)
Nova Scotia	8	5	11	3	2	2	1	0	1
Queen's	6	5	14	3	3	4	1	3	2
Toronto	14	17	17	12	10	12	3	4	4
Windsor(a)	2	2	4	1	4	3	1	1	3
TOTAL (10 Universities)	128	133	(b)	65	69	(b)	26	36	(b)

Notes: (a) Program in Engineering Materials
(X) Estimate not provided, numbers based on previous survey data
(b) Data not complete, total considered inaccurate

TABLE 3

MINERAL PROCESSING - DEGREES RECEIVED IN 1987 - FORECAST FOR 1988-1989

UNIVERSITY	BACHELOR			MASTER			DOCTORATE		
	1987	1988	1989	1987	1988	1989	1987	1988	1989
Alberta	3	1	5	2	3	1	0	0	1
British Columbia	9	9	2	2	1	2	2	2	1
Laurentian	3	6	10	-	-	-	-	-	-
Laval	-	-	-	4	3	4	2	1	2
Queen's	2	4	4	0	1	1	0	0	0
Toronto	7	3	2	0	1	2	0	0	0
TOTAL (6 Universities)	**83**	**69**	**66**	**19**	**32**	**38**	**3**	**11**	**16**

TABLE 4

PETROLEUM ENGINEERING - DEGREES RECEIVED IN 1987 - FORECAST FOR 1988-1989

UNIVERSITY	BACHELOR			MASTER			DOCTORATE		
	1987	1988	1989	1987	1988	1989	1987	1988	1989
Alberta	40	43	40	1	5	4	5	5	3
TOTAL (1 University)	40	43	40	1	5	4	5	5	3

TABLE 5

TECHNOLOGY - GRADUATES IN 1986 - FORECASTS FOR 1987-1988

COMMUNITY COLLEGE, CEGEP, OR TECHNICAL SCHOOL	GAS-OIL OPTIONS			GEOLOGY OPTIONS			METALLURGY OPTIONS			MINING OPTIONS			OTHER OPTIONS		
	1987	1988	1989	1987	1988	1989	1987	1988	1989	1987	1988	1989	1987	1988	1989
B.C. Institute of Technology (X)	30	16	X				7	7	X	4	15	(X)			
Cambrian College				14	15	(X)	6	8	12	10	11	11	5(a)	8(a)	(X)(a)
College de l'Abitibi-Temiscamingue				2	4	6	2	4	6	4	8	6			
College de la Region de L'Amiante				4	2	5	1	3	3	6	4	4			
College de Trois Rivière							14	10	12						
College du Vieux Montreal (X)							3	4	(X)						
Fanshawe College							12	5	15						
Mohawk College (X)							15	13	(X)				16	21	X(b)
Northern Alta. Inst. of Technology	28	12	9	9(c)	7(c)	6(c)	9(a)	10(d)	12(d)				6(e)	14(e)	6(e)
Northern College (Haileybury)				1	(X)	(X)	2	(X)	(X)	17	(X)	(X)	(X)	16(f)	20(f)
Sault College				0	8	8							7(g)	2(g)	1(g)
Southern Alta. Inst. of Technology	98	114	87												
University College of Cape Breton										8	0	4			
Western Community College										7	8	17			
TOTALS (17 Colleges)	156	142	-	30	36	-	71	64	-	56	46	-	34	61	-

Notes:
(a) Geophysics Options to Geology Technology
(b) Materials Testing
(c) Geology/Exploration
(d) Materials Engineering
(e) Water Resources
(f) General Program in first year
(g) Mine Maintenance Technology
(x) Estimate not provided, data based on previous survey

GENERAL SUMMARY

GRADUATES IN 1987 - FORECASTS FOR 1988-1989

TABLE	DESCRIPTION	TECHNOLOGY			BACHELOR			MASTER			DOCTORATE		
		1987	1988	1989	1987	1988	1989	1987	1988	1989	1987	1988	1989
1	Mining Engineering				83	67	66	19	32	38	3	11	16
2	Metallurgical Engineering				128	133	(a)	65	69	(a)	26	39	(a)
3	Mineral Processing (Engineering)				24	23	23	8	9	10	4	3	4
4	Petroleum Engineering				40	43	40	1	5	4	5	5	3
5	Technology												
	Gas - oil	156	142										
	Geology	30	36										
	Metallurgy	71	64										
	Mining	56	46										
	Other	34	61										
TOTALS 1987 - 753 (1987 Forecast - 976)		347	349	(a)	275	268	(a)	93	115	(a)	38	58	(a)
1988 - 790													

(a) data not complete, total considered inaccurate

(For comparison purposes, the 1984 total for the above categories was 1, 189)